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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/662,282	09/16/2003	Yoichi Takada	03500.017555.	9807

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EXAMINER

SHAH, MANISH S

ART UNIT PAPER NUMBER

2853

DATE MAILED: 10/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/662,282	<b>Applicant(s)</b> TAKADA ET AL.	
	<b>Examiner</b> Manish S. Shah	<b>Art Unit</b> 2853	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 August 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>11/24/2003</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koyano et al. (# JP 2002-079739) in view of Osumi et al. (# US 6280513).

Koyano et al. discloses a set of an ink and reaction solution (pre-processing liquid) for used in image recording (see Abstract) in which an ink containing a coloring material in a dissolve or dispersed state (dye or pigment) (0128]-[0136]), the reaction solution destabilizing the dissolved or dispersed state of the coloring material in the ink in contact with the ink (see Abstract; [0012]), wherein the reaction solution contains at least a polyvalent metal salt (multivalent ion) in an amount from 0.01 to 10.0 % by weight ([0098]-[0100]; see Examples) and a nonionic polymer (see Examples), and viscosity of the reaction solution is from 10 to 10000 mPas ([0075]). They also disclose that the pH of the reaction solution is from 2 to 7 (see Examples). They also disclose that the physical value of the liquid composition and ink composition is almost same (see Examples).

Koyano et al. differs from the claim of the present invention in that the  $K_a$  value of the reaction solution according to the Bristow method is from  $1.3 \text{ mL} \cdot \text{m}^{-2} \cdot \text{msec}^{-1/2}$  to  $3.0 \text{ mL} \cdot \text{m}^{-2} \cdot \text{msec}^{-1/2}$ .

Osumi et al. teaches that to get the high quality, feathering free printed image, ink composition has a  $K_a$  value to not more than 1.5 (column: 14, line: 45-65).

However, Koyano et al. teaches that the physical value of the liquid composition and ink composition is almost same (see Examples).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the physical value of reaction solution of Shirota et al. by the aforementioned teaching of Koyano et al. in order to have uniform high quality feathering free printed image.

2. Claims 5-7 & 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koyano et al. (# JP 2002-079739) in view of Osumi et al. (# US 6280513).

Koyano et al. discloses an ink jet recording apparatus (figure: 1-2) including a recording head (element: 20, figure: 1-2) for discharging an ink containing a coloring material in a dissolved or dispersed state; an ink cartridge (figure: 1-2) having an ink storage unit (element: 21, figure: 1-2) containing the ink, ink supply means for supplying the ink from the ink cartridge to the recording head (figure: 1-2), and means for supplying reaction solution (pre-processing liquid) (figure: 1-2) that destabilizing the dissolved or dispersed state of the coloring material in the ink in contact with the ink (see Abstract; [0012]), wherein the reaction solution contains at least a polyvalent metal salt (multivalent ion) in an amount from 0.01 to 10.0 % by weight ([0098]-[0100]; see

Examples) and a nonionic polymer (see Examples), and viscosity of the reaction solution is from 10 to 10000 mPas ([0075]). They also disclose that the pH of the reaction solution is from 2 to 7 (see Examples). They also disclose that the physical value of the liquid composition and ink composition is almost same (see Examples). They also disclose that the inkjet recording apparatus including a coating roller for applying the reaction solution onto a recording medium (see figure: 1-2; [0079]). They also disclose that the amount of the reaction solution applied on the recording medium is from  $0.5 \text{ g/m}^2$  to  $10 \text{ g/m}^2$  ([0103]).

Koyano et al. differs from the claim of the present invention in that the Ka value of the reaction solution according to the Bristow method is from  $1.3 \text{ mL.m}^{-2}.\text{msec}^{-1/2}$  to  $3.0 \text{ mL.m}^{-2}.\text{msec}^{-1/2}$ .

Osumi et al. teaches that to get the high quality, feathering free printed image, ink composition has a Ka value to not more than 1.5 (column: 14, line: 45-65).

However, Koyano et al. teaches that the physical value of the liquid composition and ink composition is almost same (column: 6, line: 40-42; column: 7, line: 12-20).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the physical value of reaction solution of Koyano et al. by the aforementioned teaching of Osumi et al. in order to have uniform high quality feathering free printed image.

3. Claims 12-14 & 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koyano et al. (# JP 2002-079739) in view of Osumi et al. (# US 6280513).

Koyano et al. discloses an image recording method including the steps of coating a recording medium with reaction solution (pre-processing liquid) (see Abstract) capable of destabilizing the dissolved or dispersed state of the coloring material in the ink in contact with the ink (see Abstract; [0012]) and an ink containing a coloring material in a dissolve or dispersed state (dye or pigment) ([0128]-[0136]), and coating the ink on the recording medium by an inkjet method (figure: 1-2), wherein the reaction solution contains at least a polyvalent metal salt (multivalent ion) in an amount from 0.01 to 10.0 % by weight ([0098]-[0100]; see Examples) and a nonionic polymer (see Examples), and viscosity of the reaction solution is from 10 to 10000 mPas ([0075]). They also disclose that the pH of the reaction solution is from 2 to 7 (see Examples). They also disclose that the physical value of the liquid composition and ink composition is almost same (see Examples). They also disclose that the amount of the reaction solution applied on the recording medium is from 0.5 g/m<sup>2</sup> to 10 g/m<sup>2</sup> ([0103]).

Koyano et al. differs from the claim of the present invention in that the Ka value of the reaction solution according to the Bristow method is from 1.3 mL.m<sup>-2</sup>.msec<sup>-1/2</sup> to 3.0 mL.m<sup>-2</sup>.msec<sup>-1/2</sup>.

Osumi et al. teaches that to get the high quality, feathering free printed image, ink composition has a Ka value to not more than 1.5 (column: 14, line: 45-65).

However, Koyano et al. teaches that the physical value of the liquid composition and ink composition is almost same (column: 6, line: 40-42; column: 7, line: 12-20).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the physical value of reaction solution of Koyano et al. by the

aforementioned teaching of Osumi et al. in order to have uniform high quality feathering free printed image.

4. Claims 8-9 & 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koyano et al. (# JP 2002-079739) in view of Osumi et al. (# US 6280513) as applied to claims 5-7, 10-11, 12-14 & 17-18 above, and further in view of Matzinger (# US 6020397).

Koyano et al. and Osumi et al. teaches all the limitation of the claimed invention except that the pH of the reaction solution is lower than the ink, and the viscosity of the reaction solution is greater than the viscosity of ink.

Matzinger teaches that to get the wet-rub resistance and accent marker resistance printed image, inkjet printing method and apparatus including the ink composition and reaction solution, wherein the pH of the reaction solution is lower than the ink (see Examples: 1, 2) and the viscosity of the reaction solution is greater than the viscosity of ink (see Example: 1).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the ink and reaction composition in the inkjet printing method and apparatus of Koyano et al. as modified by the aforementioned teaching of Matzinger in order to have wet-rub resistance and accent marker resistance printed image.

### ***Response to Arguments***

5. Applicant's arguments with respect to claims 1-18 have been considered but are moot in view of the new ground(s) of rejection.


**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Manish S. Shah whose telephone number is (571) 272-2152. The examiner can normally be reached on 7:00am-3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Manish S. Shah  
Examiner  
Art Unit 2853

  
MSS  
10/4/04